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## PATENT ABSTRACTS OF JAPAN

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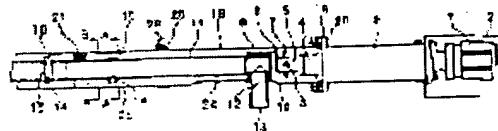
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## (54) WASHING APPARATUS

## (57)Abstract:

PROBLEM TO BE SOLVED: To provide a washing apparatus that can smoothen the reciprocation motion of the shower pipe in the pipe axis direction, suitably setting the floating range of the guide ring for guiding the reciprocation of the shower pipe to develop the guide function at the key points for the shower pipe and prevents the guide ring from being abraded thereby permitting healthy reciprocation motion for a long period of time.

SOLUTION: In this washing apparatus, the shower pipe 11 is inserted into the outer cylinder 18 and the shower pipe is slidably guided in the axis direction of the shower pipe 11 through a plurality of guide rings 21 arranged between the outer peripheral surface of the shower pipe 11 and the inner peripheral surface of the outer cylinder 18. The guide rings 32 are fitted to the outer peripheral surface slidably in the axis line direction and the guide rings are arranged between the nozzle-protecting collars. At the same time, the stopper for the guide ring 21 is formed with the nozzle-protecting collar 15 to set the floating range of the guide ring 21.



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CLAIMS

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## [Claim(s)]

[Claim 1] It has two or more nozzles which kept a gap in the direction of an axis and protruded on a tube wall of a shower pipe. Interpolate this shower pipe in an outer case, and a slide to the direction of an axis of a shower pipe is guided through two or more guide rings allotted between this shower pipe peripheral face and outer case inner skin. In washing equipment it was made to emit a opening which prepared washing liquid from the above-mentioned nozzle in a tube wall of an outer case at the time of this sliding to a method of the outside of through The above-mentioned guide ring is slid together good [ a ranging behavior ] in the direction of an axis to a peripheral face of a shower pipe. While allotting two or more nozzle protection colors which have nozzle exposure opening in the above-mentioned nozzle installation part of the another side above-mentioned shower pipe to an outside attachment meal and allotting the above-mentioned guide ring between these nozzle protection colors Washing equipment characterized by considering as a configuration which forms a stopper of a guide ring in this nozzle protection color, and sets up the above-mentioned ranging behavior range of a guide ring.

[Claim 2] Washing equipment according to claim 1 characterized by forming the above-mentioned guide ring with hard synthetic resin.

[Claim 3] Washing equipment according to claim 2 characterized by having formed an escape scuttle of a nozzle in the above-mentioned guide ring, and making possible insert and remove to a shower pipe.

[Claim 4] Washing equipment according to claim 2 or 3 characterized by preparing a notch which reduces contact in an outer case in the above-mentioned guide ring.

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## DETAILED DESCRIPTION

## [Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This invention relates to the washing equipment used for washing of paper-making bands, such as \*\*\*\* in paper manufacture, or felt.

[0002]

[Description of the Prior Art] If it was in the washing equipment of the paper-making band in the conventional paper machine, by being installed in \*\*\*\*\* of a paper-making band and making repeat round trip sliding of this carry out in the direction of an axis with a both-way driving gear, the shower pipe which had a nozzle for spouting two or more high-pressure water, for example in the direction of an axis injects from a nozzle the high-pressure water supplied to the shower pipe on a paper-making band, and washed this.

[0003] Moreover, the above-mentioned shower pipe is supported free [ sliding ] through a guide ring in an outer case, and inhibits advance of nozzle dirt, and it considers as the structure where extraction of the shower pipe is carried out and it can be cleaned from an outer case, and, as for a guide ring, it is common to fix and prepare in the home position of a shower pipe.

[0004]

[Problem(s) to be Solved by the Invention] the severe service condition in which the appropriate shower pipe which is alike and forms the above-mentioned washing equipment repeats a both-way slide in many years past -- the smooth slide a smooth slide may be checked by the adjustment error of a guide ring and an outer case etc. with the structure which fixed and prepared him and the above-mentioned guide ring in the home position, and wear a guide ring out at an early stage, and according to the guide ring of a shower pipe gradually -- carrying out -- being hard -- the technical problem which spoils endurance occurred.

[0005] By this invention solving the above technical problems and enabling idle movement of the guide ring which makes outer case inner skin support a shower pipe to this shower pipe and outer case, the slide of the shower pipe by the guide ring is made smooth, and early wear of a guide ring etc. is prevented effectively and it aims at offering the washing equipment which continues at a long period of time, and enabled it to hold this condition.

[0006]

[Means for Solving the Problem] In washing equipment to which it showed a slide to the direction of an axis of a shower pipe through two or more guide rings which allotted this invention between the above-mentioned shower pipe peripheral face and outer case inner skin Adopting a configuration which slides the above-mentioned guide ring together good [ a ranging behavior ] in the direction of an axis to a peripheral face of a shower pipe It is washing equipment considered as a configuration which allots the above-mentioned guide ring between nozzle protection colors, forms a stopper of a guide ring in this nozzle protection color, and sets up the above-mentioned ranging behavior range of a guide ring.

[0007] The above-mentioned guide ring is formed with hard synthetic resin, and it makes a slide smooth, inhibiting wear and generating of rust.

[0008] An escape scuttle of a nozzle was formed in the above-mentioned guide ring, and insert and remove of a guide ring to a shower pipe were made easy at the time of an assembly. Moreover, a notch which reduces contact in an outer case is prepared in this guide ring, and the smooth nature of the above-mentioned slide is made to improve.

[0009]

[Embodiment of the Invention] Hereafter, one gestalt of implementation of this invention is explained based on drawing. Drawing 1 is the important section side elevation in which carrying out the cross section of a part of washing equipment, and showing it, and is set to this drawing. The screw shaft which has the both-way spiral slot where the motor by which 1 was attached in the cover 2, and 3 are the both-way mechanical components attached in the cover 2, and this mechanical component was directly linked with the shaft and coaxial line of a motor 1 inside. It has the migration piece which slides on the inside of the spiral slot of this screw shaft in the direction of an axis, and the motor shaft and the reciprocation shaft 4 of a coaxial line which is connected with this migration piece and reciprocates.

[0010] Moreover, the joint section by which 5 was attached in reciprocation shaft 4 edge, and 6 are other joint sections connected with the cross joint by pins 7 and 8 at this joint section 5, and these are made into universal joint structure.

[0011] Furthermore, through the edge watering cylinder 9 combined with the above-mentioned joint section 6 by this joint section 6 with the bolt 10, the shower pipe 11 is installed by a motor shaft and a screw shaft, and the coaxial line, and the washing liquid delivery pipe 15 which forms the washing liquid feed hopper 12 is connected with this edge watering cylinder 9 by screwing etc. A hose is connected to the washing liquid delivery pipe 15, and supply of high-pressure washing liquid is enabled in the shower pipe 11.

[0012] A gap is kept in the tube wall of the above-mentioned shower pipe 11 in the direction of an axis, and the nozzle 14 protrudes. A nozzle 14 is exposed to shower pipe 11 periphery of the installation part of this nozzle 14 for the ring-like protection color 15 from an outside attachment meal and the nozzle exposure opening 17 of this protection color 15. As shown in drawing 2, this protection color 15 has two or more mounting holes 16, screws a screw thread in this mounting hole 16, and is fixed to the shower pipe 11. This protection color 15 consists of synthetic-resin metallurgy group.

[0013] 18 is an outer case which holds the edge, the watering cylinder 9, and the shower pipe 11 of said reciprocation shaft 4 in the interior, and the covering edge of said both-way mechanical component 5 concludes the end face by the side of the motor of this outer case 18 with the bolt nut 20 through the flange 19.

[0014] In the above-mentioned outer case 18, two or more guide rings 21 which support the shower pipe 11 free [ sliding ] are formed. As the inner skin of this guide ring 21 is shown in drawing 3, it is loosely inserted in the peripheral face of the shower pipe 11, and the peripheral face of this guide ring 21 is loosely inserted in the inner skin of an outer case 18, consequently idle movement of this guide ring 21 is enabled in the direction of an axis, and the hand of cut to the peripheral face of the shower pipe 11, and the inner skin of an outer case 18.

[0015] That is, while sliding the above-mentioned guide ring 21 together good [ a ranging behavior ] in the direction of an axis to the peripheral face of the shower pipe 11, this guide ring 21 is allotted between the nozzle protection colors 15, and it considers as the configuration which forms the stopper of a guide ring 21 in this nozzle protection color 15, and sets up the above-mentioned ranging behavior range of a guide ring 21.

[0016] This guide ring 21 is fabricated with the good super-macromolecule polyethylene resin of lubricative ability.

[0017] The notch 22 for reducing frictional resistance with an outer case 18 is formed in the location equally divided into three, and the nozzle escape scuttle 23 of width of face which can permit passage of the direction of an axis of said nozzle 14 into the one notch 22 portion is formed in the periphery of the above-mentioned guide ring 21. In case this nozzle escape scuttle 23 inserts a guide ring 21 in the shower pipe 11 loosely, it enables passage of a nozzle 14.

[0018] The opening 24 which permits migration of the watering cylinder 9 at the time of reciprocation of the shower pipe 11 is formed in the end face tube wall of the above-mentioned outer case 18, and the opening 25 which permits injection of the washing liquid to a paper-making band etc. from the above-mentioned nozzle 14 is further formed in the nozzle 14 of an outer case 18, and the tube wall which counters.

[0019] 26 is outer case supporter material which supports the periphery of said outer case 18, as shown in drawing 4, is consisting of lower susceptor 27 with circle notch 27a, and an up housing 28 with circle notch 28a, intervening an outer case 18 between both circle notch 27a and 28a, and thrusting two or more screw threads 29 into the lower susceptor 27 through the up housing 28, and fixes an outer case 18 to stability by two or more places of the direction of an axis.

[0020] The screw shaft of the both-way mechanical component 3 rotates the above-mentioned washing equipment by making a motor 1 drive, and the reciprocation shaft 4 reciprocates by fixed stroke in the direction of an axis. For this reason, similarly the shower pipe 11 connected with this reciprocation shaft 4 through the joint sections 5 and 6 reciprocates in the direction of an axis.

[0021] since the shower pipe 11 is supported free [ sliding ] with the retaining ring 21 which moves idly in the direction of an axis to the shower pipe 11 and an outer case 18 at this time, the motion in the outer case 18 of the shower pipe 11 carries out smoothly -- having -- wear of a guide ring 21 -- as much as possible -- preventing -- the above -- a smooth slide is secured.

[0022] Moreover, the above-mentioned guide ring 21 moves idly to shaft orientations freely with reciprocation of said shower pipe 11, being guided to both an outer case 18 and the shower pipe 11, and the ranging behavior to the direction of an axis beyond it is restricted in the stopper formed in the nozzle protection color 15. That is, each protection color 15 is structure which serves as the stopper which sets up the movement magnitude of the direction of an axis of a guide ring 21.

[0023] Sampling is possible for the above-mentioned shower pipe 11 from the end of an outer case 18 because of check of a nozzle 14 etc., maintenance, exchange, etc., and a guide ring 21 guides this pipe extraction good, and can carry out extraction of the guide ring 21 together with a pipe 11.

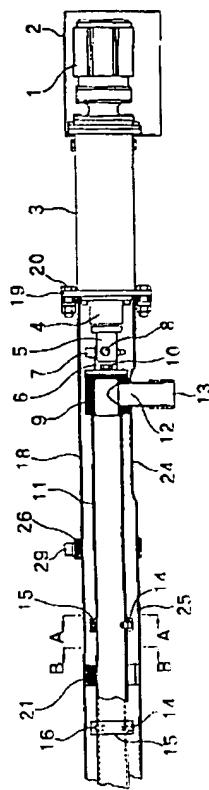
[0024]

[Effect of the Invention] As mentioned above, a guide ring moves idly in the direction of an axis at the time of the reciprocation to the direction of an axis of a shower pipe, smooth reciprocation of a shower pipe is guaranteed effectively, and the above-mentioned ranging behavior range is set up with a nozzle protection color, and a guide ring prevents too much deviation, and can demonstrate appropriately the guide function in the shower pipe key point.

[0025] Moreover, wear of a guide ring can be prevented as much as possible, and it can continue at a long period of time, and can be made to reciprocate healthfully.

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Drawing selection drawing 1



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